

ABSTRACT

This invention provides a system for efficiently producing differentiated cells from pluripotent cells, such as human embryonic stem cells. Rather than permitting the cells to form embryoid bodies according to established 5 techniques, differentiation is effected directly in monolayer culture on a suitable solid surface. The cells are either plated directly onto a differentiation-promoting surface, or grown initially on the solid surface in the absence of feeder cells and then exchanged into a medium that assists in the differentiation process. The solid surface and the culture medium can be chosen to direct differentiation down a particular pathway, generating a cell population that is remarkably uniform. The methodology is well adapted to bulk production of committed precursor and 10 terminally differentiated cells for use in drug screening or regenerative medicine.